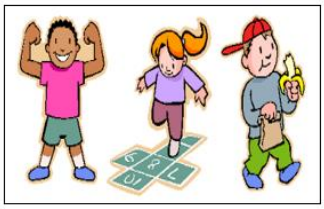
Unit 1: Nutrition and Health

What is food?

Foods can be solid or liquid things that are edible.

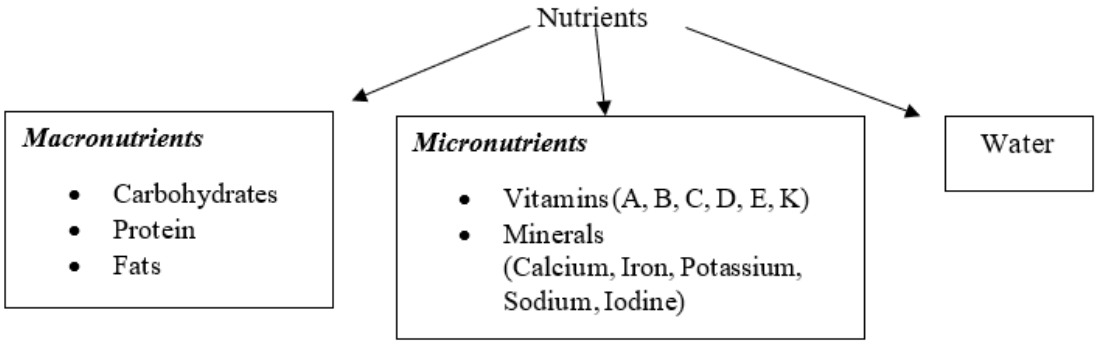
Food contains substances called **nutrients** that nourish your body. These nutrients are important as they:

- Help you grow.
- Build your muscles and bones.
- Provide you with energy for work and play.
- Enable you to stay healthy, by protecting you from diseases.
- For pleasure and enjoyment.



Nutrients can be classified as

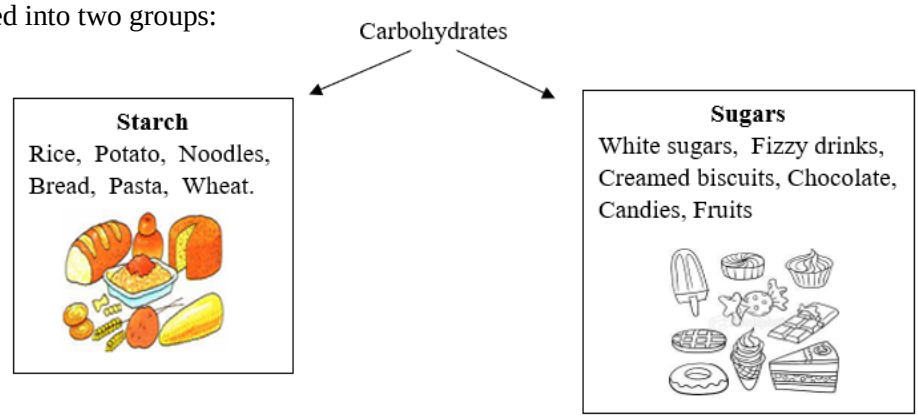
- **macronutrients** (needed in large amounts)
- **micronutrients** (needed in small amounts)



- Another substance that is not considered as nutrient, but is needed by the body is **dietary fibre**.
- Diet is all the food we eat and drink during a day.
- Meal is food eaten at specific time of the day, for example, *breakfast*, *lunch* and *dinner*.
- Snacks are smaller portions of food eaten between meals.
- Balanced meal is one that consists of different types of nutrients in the correct proportions.

Carbohydrates

- Carbohydrates are nutrients in foods that provide you with energy to carry out our daily activities.
- It can be classified into two groups:



Lack of carbohydrates	Excess of carbohydrates
-Weakness 	-Put on weight, leading to obesity -Dental caries/ tooth decay -Diabetes 

Protein

- Proteins are important for your growth and development.
- They are also involved in the repair of damaged body parts and are sources of energy.

Sources of protein

Animal sources
- Meat
- Seafood
- Animal products such as eggs, cheese and milk

Plant sources
- Legumes (beans, peas)
- Nuts
- Grains/ Pulses
- Processed plant products such as bean curd

Lack of protein	Excess of protein
-Kwashiorkor (mainly in children- retard physical and mental developments) 	- Excreted as urea - Use as energy

Fats

- Fats are important as they provide you with energy and help to keep the body warm.
- They provide energy and also transport fat-soluble vitamins (A, D, E, K).
- Fats also add flavour and aroma to food, which is why fried and fast foods appeal to all.

Fats

Saturated fats (solid at room temperature)
The **unhealthier** one as it raises blood cholesterol.
Examples:
- Butter
- Ghee
- Animal fats
- Coconut oil
- Milk

Unsaturated fats (soft or liquid at room temperature)
Examples:
- Margarine
- Vegetable oil
- Nuts
- milk

Lack of fats	Excess of fats
- Weight loss, leading to underweight.	- Fat deposit on wall of artery causing narrowing of lumen, leading to heart diseases. - Stored in the body, leading to obesity.

Vitamins

- Vitamins are needed in small amounts but a shortage in the body may lead to **deficiency disease**

Vitamins

- Water- soluble
  - Vitamin B
  - Vitamin C
- Dissolve in water.
- Cannot be stored in the body.

- Fat- soluble
  - Vitamin A
  - Vitamin D
  - Vitamin E
  - Vitamin K
- Dissolve in fat.
- Excess is stored in the body

Fat soluble vitamins			
Vitamins	***Sources***	***Functions***	***Deficiency disease***
A	Liver, yolk, red/orange fruits and vegetables, e.g. carrot, tomatoes	➢ For good vision. ➢ Healthy skin.	Night blindness
D	Sunlight, egg yolk, milk, margarine, liver	➢ For strong bones and teeth. ➢ Absorbs mineral **calcium**	Ricket (in children)
E	Vegetable oils, nuts, eggs, liver, butter, margarine	➢ Prevent oxidation of fat. ➢ Protect cells.	Rare
K	Liver, green leafy vegetables, vegetable oils	➢ For normal clotting of blood.	Excessive bleeding.
Water soluble vitamins			
Vitamins	***Sources***	***Functions***	***Deficiency disease***
B	Egg, meat, milk, nuts, green leafy vegetables	➢ Helps to release energy from foods. ➢ Protect the nervous system.	beri-beri Pellagra
C	Citrus fruits, kiwi, strawberries, tomatoes, goyava	➢ Protects from infections. ➢ Absorption of mineral **iron** in the body.	Scurvy

Minerals

- Minerals are found in small amounts in food and they are not completely absorbed by the body.
- Some examples are Calcium, Iron, Potassium, Sodium and Iodine

Minerals	**Sources**	**Function**	**Deficiencies**	**Excess**
Calcium	Milk & milk products, watercress, cabbage, okra, canned fish with bones	➢ Formation of strong bones and teeth. ➢ Blood clotting.	➢ Poor growth in children. ➢ Ricket (in children)	Hypercalcemia

Iron	Liver, whole grain cereals, dark green leafy vegetables, pulses, dried fruits	➢ Formation of red blood cells.	➢ Anaemia	Diarrhea/ constipation/ dizziness
Potassium	Meat, fish, poultry, avocado, banana, orange, spinach, watermelon, coconut water	➢ Nerve function. ➢ Maintain normal blood pressure.	➢ Muscular weakness	Weakness / numbness
Sodium	Table salt, canned foods, soya sauce, savoury packaged foods, chilli/tomato sauce	➢ Needed for water balance. ➢ Nerve function.	➢ Muscles cramps ➢ Weakness	Bloating and swelling of tissues/ water retention Hypertension
Iodine	Table salt, seafoods, edible sea weeds	➢ Needed for a substance (hormone called thyroxine) which regulates the use of energy in the body.	➢ Goitre (enlargement of thyroid gland) ➢ Cretinism in babies.	Hypothyroidism

Water

- Although water does not provide us with energy, we need it for our bodies to function.
- We are advised to drink at least eight glasses of water each day.
- More water is needed in hot weather.

Food sources	Importance	Lack in the body
Plain water, beverages (fruit juices, milk, milkshake, tea, coffee), fruits and vegetables, watermelon, coconut water, cucumber, tomatoes	➢ Regulate body temperature. ➢ Transport nutrients and oxygen in blood. ➢ Digest food. ➢ Remove waste products/ toxins through urine, stools and perspiration. ➢ Prevent constipation	***Dehydration:*** the amount of water loss is greater than the amount of water taken in. <u>Symptoms:</u> Feeling thirsty, Dry lips and mouth, Dizziness, Headache, Sunken eyes

Dietary fibre

- Dietary fibre forms part of a plant that cannot be digested by the body.
- They help you get rid of unwanted materials from the body.
- Dietary fibre helps to make the waste materials in the body soft and bulky as it has the ability to absorb water, preventing constipation and cancer of the intestines.
- All plants contain dietary fibre but it is present in different amounts.
- Animal products do not contain any fibre at all.

Revision questions

Fill in the blanks with the words from the list below:

Fat, Water, Iodine, iron, calcium, vitamin A, health

(a) Vitamin C helps in the absorption of _____ in the body.

(b) _____ soluble vitamins can be stored in the body.

(c) Vitamin D and _____ helps in the strengthening of bones.

(d) _____ is needed to produce thyroxine.

(e) _____ is needed to regulate body temperature.

2. List four good sources of water.

1) _____ 2) _____

3) _____ 4) _____

3. Define dehydration.

_____

4. List four common symptoms of dehydration.

1) _____ 2) _____

3) _____ 4) _____

5. Match the deficiency diseases of the following:

Scurvy	●	● Vitamin B
Goitre	●	● Vitamin A
Anaemia	●	● Vitamin D
Night blindness	●	● Iodine
Ricket	●	● Iron
Pellagra	●	● Vitamin C

Fruits and vegetables

- Fruits and vegetables can be cooked and served in several ways.
- They are an important sources of vitamins, minerals, dietary fibre, water plant protein, healthy fats and antioxidants.

Colours of fruits/vegetables and their health benefits	Examples of fruits and vegetables
Red - Fight cancer - Reduce risk of diabetes and heart diseases 	Watermelon, tomatoes, beetroot, strawberries, red pepper, red grapes, apples
Orange and **Yellow** - Boost immune system - Good vision - Prevent cancer 	Orange, pumpkin, carrot, corn, yellow pepper, pineapple, pawpaw
Green - boost immune system - prevents constipation - prevent cancer 	Kiwi, green pepper, apple, green grapes, green leafy vegetables, melon, parsley, broccoli
Blue and **Purple** - protect cells - prevent inflammation - boost memory 	Eggplant, prunes, grapes, reg cabbage, blueberries
White - prevent cancers - lower cholesterol - prevent inflammation 	Banana, garlic, cucumber, cauliflower, cabbage, white radish

<u>Ways to increase fruits and vegetables in our diet:</u>

- Use as snacks.
- Can be incorporated in main dishes and desserts.
- Choose fresh fruit juice.
- Choose smoothies as drinks.
- Keep snack size portions, easier to be accessible.

Revision questions

1. Match column A to column B, and give two examples of each.

Colour of fruits/ vegetables		Functions	Examples
Red ●		● Boost memory	1. _____ 2. _____
Orange/ yellow ●		● Prevent constipation	1. _____ 2. _____
Blue/ purple ●		● Lowers cholesterol	1. _____ 2. _____
White ●		● Promote healthy eyes	1. _____ 2. _____
Green ●		● Reduce risk of diabetes	1. _____ 2. _____

2. Suggest ways of increasing fruits and vegetables in your diet.

_____

_____

_____

_____

_____

_____

Food habits and Food choices

A Non-Communicable Disease is a disease that is not transferred from one person to another.

Examples:

- Diabetes,
- Cardiovascular diseases,
- Hypertension,
- Obesity,
- Some types of cancers

You are what you eat, however, one main ways to reduce risk of NCDs is to develop healthy food habits and food choices.

Food habits refers to why and how people eat, which foods they eat, and with whom they eat.

Food choices refer to how people decide on what to buy and eat.

Factors affecting food habits and food choices	
Personal factors	**External factors**
- A person's needs - Nutritional requirements - Likes and dislikes - Moods and emotions - Lifestyle of people	- Food available - Individual/ family salary - Social occasions - Peer pressure - Traditions/ Culture/ religious beliefs - Advertising

Eating out

Some common eating outlets are:

- Canteen
- Street food vendors
- Food courts
- Restaurants
- Fast-food outlets

Points to consider when eating out:

- Choose healthy foods.
- Avoid fat, sugar and salt.
- Drink water or fresh juice instead of fizzy drinks.
- Choose steamed, grilled, boiled or baked foods instead of frying.
- Limit sauces (mayonnaise)

Hygienic practices when eating out

- Clean place.
- Food properly covered.
- Food not sold near toilets or dustbins.
- Water easily available.

Eating disorders		
Binge eating	**Anorexia Nervosa**	**Bulimia Nervosa**
Excessive eating in short period of time. 	Obsessive fear of gaining weight. Do excessive diet/ exercise/ fasting 	Compensate overeating by forced vomiting/ excessive exercise/ use of laxatives. 

Revision questions

1) Define Non-Communicable disease and give three examples.

_____

_____

Examples:

1. _____ 2. _____

3. _____

2) List three personal and three external factors which influence food habits and food choice.

Personal factors	External factors
1. _____	1. _____
2. _____	2. _____
3. _____	3. _____

3) List three points to consider when eating out.

1. _____

2. _____

3. _____

4) Define the following eating disorders:

(a) Binge eating

_____

_____

(b) Anorexia Nervosa

_____

_____

(c) Bulimia Nervosa

_____

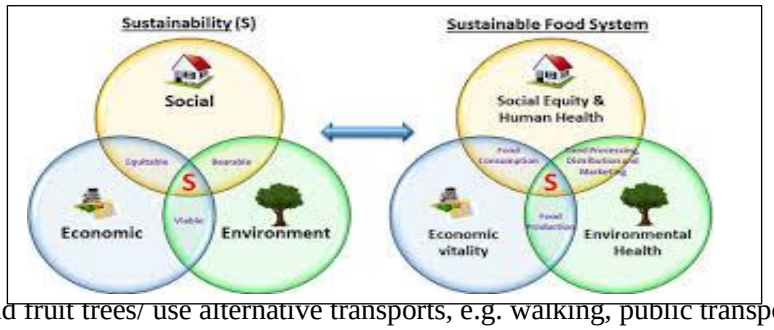
_____

Unit 2: Food technology

Sustainable food production is when food is produced, processed, distributed and disposed of in ways that contribute to the environmental, economical and social well-being.

Examples:

- Save water
- 3 Rs (e.g, making of compost)
- Support local food production
- Grow your own food



1. Individual: grow your own vegetables and fruit trees/ use alternative transports, e.g. walking, public transport

2. Agricultural: preserve natural resources/ caring for valued landscapes, e.g. growing of cassava

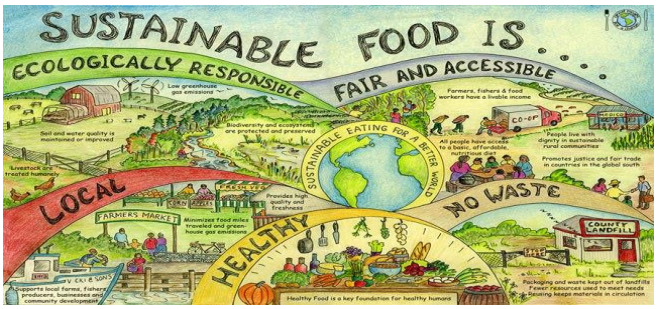
3. Industrial level: reduce use of chemicals (additives in food)/ recycled materials for packaging

Sustainable food consumption is the result of choices that consumers make when purchasing products, in order not to affect the environment and reduce waste. Unsustainable food production and consumption may cause:

1. Deforestation, soil depletion, and increased energy demand
2. Global warming, pollution and natural resources depletion.

Examples of sustainable food consumption practices:

- Preparing and cooking food
- Shopping smartly
- Eating different types of local foods
- Preserving different types of foods



Revision questions

Define

(a) sustainable food production and give two examples.

_____

_____

Examples:

1. _____
2. _____

(b) sustainable food consumption and give two examples.

_____

_____

Examples:

1. _____
2. _____